PATENT APPLICATION

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

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**Serial No.:** 10/722,203

**Examiner:** Paul D. Kim

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**Group Art Unit:** 3729

**Title:** Sonically ablated sensor

**MAILSTOP: Appeal Brief-Patents**
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# BRIEF ON APPEAL

## INTRODUCTION

Pursuant to the provisions of 37 CFR § 1.191 *et seq.*, applicants hereby appeal to the Board of Patent Appeals and Interferences (the "Board") from the examiner's final rejection dated 10/13/2006. A notice of appeal was sent on the same day as this appeal brief. This brief is accompanied by the requisite fee (37 CFR 1.192(a) and 1.17(f)).

## REAL PARTY IN INTEREST

The entire interest in the present application has been assigned to Hach Company as recorded at Reel 014473, Frame 0312.

## RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

## STATUS OF CLAIMS

Claims 1 – 24 are pending.

Claims 13 – 24 are withdrawn from consideration

Claims 1 – 12 have been finally rejected.

Claims 1 – 12 are on appeal.

## STATUS OF AMENDMENTS

There are no pending amendments.

## SUMMARY OF CLAIMED SUBJECT MATTER

This invention generally relates to field of digital images, and in particular to a method and apparatus for saving the digital images to a file using the name of a person in the image for the file name or the directory name.

The claimed subject matter of claim 1 is for a method of making a sensor to measure an analyte in a solution, the method comprising: providing a substrate (page 4 line 24 and figure 1); printing conductive ink on the substrate to form a plurality of electrode regions (page 5 lines 1 – 7 and figure 1); depositing an electrical insulation to cover one of the electrode regions (page 5 lines 12 – 14); sonically ablating the electrical insulation to form an array of pores through the electrical insulation to the conductive ink in the one electrode region (page 5 lines 14 – 21 and figure 3); and depositing metal into the pores to form an array of electrodes in the one electrode region (page 5 line 22 – page 6 line 7 and figure 4).

## Grounds of rejection to be reviewed on appeal

1. Whether claims 1 – 10 are obvious under 35 U.S.C. § 103(a) over US 5,293,025 (Wang) in view of US 5,562,973 (Nagasaka), and further in view of US 6,083,366 (Higson).

2. Whether claims 11 – 12 are obvious under 35 U.S.C. 103(a) over Wang (5,293,025) in view of Higson (US 6,083,366) and in further view of Hall et al. (4,242,379)

**ARGUMENT**

**OUTLINE**

I. Summary of the brief on appeal.
II. Summary of the requirements for *prima facie* obviousness.
III. Claims 1 - 10 rejection.
IV. Claims 11 and 12 rejection.

**I. Summary of the brief on appeal**

A. The 35 U.S.C. § 103(a) rejection of claims 1 – 10 is improper because a *prima facie* case for obviosness has not been established, for the following reasons: (1) the cited art does not teach or suggest every element of the claims, (2) the examiner incorrectly characterizes the cited art.

B. The 35 U.S.C. § 103(a) rejection of claims 11 and 12 is improper because a *prima facie* case for obviosness has not been established, for the following reasons: (1)

the cited art does not teach or suggest every element of the claims, (2) the examiner incorrectly characterizes the cited art.

**II. Summary of the requirements for *prima facie* obviousness.**

MPEP 2143.03

The prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim dependent therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

MPEP 2142.

"To establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings."

**III. Claims 1 – 10 rejection.**

Claims 1 – 10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (5,293,025) in view of Nagasaka (5,562,973) and further in view of Higson (6,083,366). Claim 1 is listed below:

1. (Original) A method of making a sensor to measure an analyte in a solution, the method comprising:
providing a substrate;
printing conductive ink on the substrate to form a plurality of electrode regions;
depositing an electrical insulation to cover one of the electrode regions;
sonically ablating the electrical insulation to form an array of pores through the electrical insulation to the conductive ink in the one electrode region; and
depositing metal into the pores to form an array of electrodes in the one electrode region.

Claim 1 requires that metal is deposited into the pores to form an array of electrodes in the one electrode region. Higson does not use metal. Higons clearly states that a conducting organic polymer is deposited into the pores (see column 2 lines 15 – 20). The current application identifies the prior art of using a conducting organic polymer in the background section on page 2, lines 14 – 19. The advantage of using metal instead of conducting organic polymers is that "The metal in the pores provides better sensitivity than a conducting organic polymer for some applications, such as chlorine detection" (see page 7, lines 5 – 6 of the current application).

Nether Wang, nor Nagasaka, deposit metal into pores to form an array of electrodes. An electrode is defined as a conductor (as a metallic substance or carbon) used to establish electrical contact with a nonmetallic portion of a circuit. *Webster's Third New International Dictionary, Unabridged*. Merriam-Webster, 2002. (emphases added). Wang is directed to a method for rapidly forming a pattern of vias in a PC board (see abstract). Vias are well known in the arts as a plated or filled hole used to establish electrical connection between conductors on different board layers. This is clearly shown in figure 3 where the first conducting layer (a) is connected to the second conducting layer (j) with the filled via holes. The vias in Wang form an electrical connection between two conducting layers in the electronic circuit. The filled holes in Wang are not electrodes. The holes in Wang certainly don't form an array of electrodes. Therefore Wang is non-analogues art. Nagasaka also fills hole with metal to form an electrical connection between two conductive sections of an electrical circuit (see abstract). The metal in Nagasaka and Wang is used to join the two conducting layers together, like soldering two wires together. As discussed above, connecting two metallic sections of a circuit by filling a hole with metal, is completely different than creating an array of electrodes by filling an array of pores with metal.

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). There is no suggestion in either Wang or Nagasaka to modify Higson to use metal instead of the conducting organic polymer in Higson. Furthermore the examiner has not presented a convincing line of reasoning as to why someone

skilled in the arts would have found the claimed invention to have been obvious in light of the teachings of the references. Therefore the examiner has not established a *prima facie* case for obviousness and claims 1 – 10 are allowable as written.

**IV. Claims 11 and 12 rejection.**

Claims 11 – 12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (5,293,025) in view of Higson (US 6,083,366) and in further view of Hall et al. (4,242,379). Claims 11 and 12 are dependent on allowable claim 1, and are therefore allowable.

**Conclusion**

In view of the above, applicant respectfully request that the examiner's rejection of claims 1 – 12 be reversed.

Respectfully submitted,

Date: 1/2/2007

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## APPENDIX I
## CLAIMS CURRENTLY PENDING

1. (Original) A method of making a sensor to measure an analyte in a solution, the method comprising:

providing a substrate;

printing conductive ink on the substrate to form a plurality of electrode regions;

depositing an electrical insulation to cover one of the electrode regions;

sonically ablating the electrical insulation to form an array of pores through the electrical insulation to the conductive ink in the one electrode region; and

depositing metal into the pores to form an array of electrodes in the one electrode region.

2. (Original) The method of claim 1 wherein depositing the metal comprises depositing gold.

3. (Original) The method of claim 1 wherein depositing the metal comprises depositing platinum.

4. (Original) The method of claim 1 wherein depositing the metal comprises depositing chromium.

5. (Original) The method of claim 1 wherein depositing the metal comprises depositing nickel.

6. (Original) The method of claim 1 wherein depositing the metal comprises depositing cadmium.

7. (Original) The method of claim 1 wherein depositing the metal comprises depositing copper.

8. (Original) The method of claim 1 wherein depositing the metal comprises depositing layers of different metals.

9. (Original) The method of claim 1 wherein depositing the metal comprises depositing a first layer of chromium and a second layer of gold over the chromium.

10. (Original) The method of claim 1 wherein depositing the metal comprises depositing a first layer of gold and a second layer of mercury over the gold.

11. (Original) The method of claim 1 further comprising treating the metal with a chemical solution to modify characteristics of the array of electrodes.

12. (Original) The method of claim 1 further comprising treating the metal with a thiol solution.

13. (Withdrawn) A sensor to measure an analyte in a solution comprising:

a substrate;

a plurality of electrode regions comprising conductive ink printed on the substrate;

electrical insulation deposited over one of the electrode regions; and

an array of electrodes in the one electrode region comprising metal deposited in an array of pores sonically ablated through the electrical insulation to the conductive ink.

14. (Withdrawn) The sensor of claim 13 wherein the metal comprises gold.

15. (Withdrawn) The sensor of claim 13 wherein the metal comprises platinum.

16. (Withdrawn) The sensor of claim 13 wherein the metal comprises chromium.

17. (Withdrawn) The sensor of claim 13 wherein the metal comprises nickel.

18. (Withdrawn) The sensor of claim 13 wherein the metal comprises cadmium.

19. (Withdrawn) The sensor of claim 13 wherein the metal comprises copper.

20. (Withdrawn) The sensor of claim 13 wherein the metal comprises layers of different metals.

21. (Withdrawn) The sensor of claim 13 wherein the metal comprises a first layer of chromium and a second layer of gold over the chromium.

22. (Withdrawn) The sensor of claim 13 wherein the metal comprises a first layer of gold and a second layer of mercury over the gold.

23. (Withdrawn) The sensor of claim 13 wherein the metal is treated with a chemical solution to modify characteristics of the array of electrodes.

24. (Withdrawn) The sensor of claim 13 wherein the metal is treated with a with a thiol solution.

## APPENDIX II
## EVIDENCE SUBMITTED

None submitted.

## APPENDIX III
## RELATED PROCEEDINGS

No related proceedings.